NATURAL RESOURCES PROGRAM

SPACE APPLICATIONS PROGRAMS

TECHNICAL LETTER NASA-26

U.S. Geological Survey
Department of the Interior

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON, D.C. 20242

Technical Letter
NASA-26
May 1966

Dr. Peter C. Badgley
Chief, Natural Resources Program
Office of Space Science and Application
Code SAR, NASA Headquarters
Washington, D.C. 20546

Dear Peter:

Transmitted herewith are 3 copies of:

TECHNICAL LETTER NASA-26

APPLICATION OF RADAR IMAGERY TO A GEOLOGIC PROBLEM AT

GLACIER PEAK VOLCANO, WASHINGTON*

by

Rowland Tabor**

Sincerely yours,

William A. Fischer
Research Coordinator for
USGS/NASA Natural Resources Program

*Work performed under NASA Contract No. R-09-020-015
**U.S. Geological Survey, Menlo Park, California

UNITED STATES

DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

TECHNICAL LETTER NASA-26

APPLICATION OF RADAR IMAGERY TO A GEOLOGIC PROBLEM AT GLACIER PEAK VOLCANO, WASHINGTON*

by

Rowland Tabor**

May 1966

These data are preliminary and should not be quoted without permission

Prepared by the Geological Survey for the National Aeronautics and Space Administration (NASA)

*Work performed under NASA Contract No. R-09-020-015

**U.S. Geological Survey, Menlo Park, California

DISTRIBUTION LIST

NASA Headquarters, D.C.	Copies
Miss Winnie Morgan, Technical Reports Officer	1
Dr. Peter C. Badgley, Program Chief	3
Mr. T. George, Chairman, Absorption Spectroscopy Geochemistry Team	1

NASA/MSC-Houston	
Leo F. Childs, Chairman, Aircraft Coordination	1
Ed Zeitler, Data Center	20

Authors	10

USGS/Washington	Copies
Research Coordinator	2
Remote Sensing Evaluation and Coordination Staff (RESECS)	2
Assistant Chief Geologists (4)	4
Discipline Coordinators (4)	4
James Burns	1
William Hemphill	1
Allen Heyl	1
Robert Moxham	1
Robert Reeves	1
David Southwick	1
Isidore Zietz	1

USGS/Menlo Park
Ernest H. Lathram
Hal T. Morris
Robert E. Wallace
Edward W. Wolfe

USGS/Denver	
Arthur B. Campbell	1
Robert L. Christiansen	1
David F. Davidson	1
Ross B. Johnson	1
Daniel R. Shawe	1
Robert H. Morris	1

USGS/Flagstaff	
Gerald S. Schaber	1

US Dept. of Agriculture	
A. B. Park	1

US Air Force	
J. F. Cronin (AFCRL)	1

US Navy	
A.G. Alexiou (NAVOCEANO)	1

Other Cooperating Investigators	
R.N. Colwell, Univ. of California	1
J. Lintz, Univ. of Nevada	1
R.J.P. Lyon, Stanford University	1
D.B. Simonett, Univ. of Kansas	1
E.H.T. Whitten, Northwestern Univ.	1

APPLICATION OF RADAR IMAGERY TO A GEOLOGIC PROBLEM AT GLACIER PEAK VOLCANO, WASHINGTON

by

Rowland Tabor

On the east side of the Quaternary Glacier Peak volcano, a large fan of stratified volcanic gravel and sand extends down the cone from high on the east flank and partially fills the adjacent Suiattle River valley.

Conventional vertical photography (fig. 1) shows the form of the fan fairly well but its planar constructional surface and its contact with solid rock are obscured by the cover of dense forest. Radar imagery (fig. 1) contrasts the highly reflective solid rock to the less reflective unconsolidated deposits emphasizing the constructional surface and making the contacts obvious. Note particularly how evident is the partially buried ridge in the center of the fan (at A) and the fan contact and small terrace of fan material revealed (as at B) on the east side of the Suiattle River.

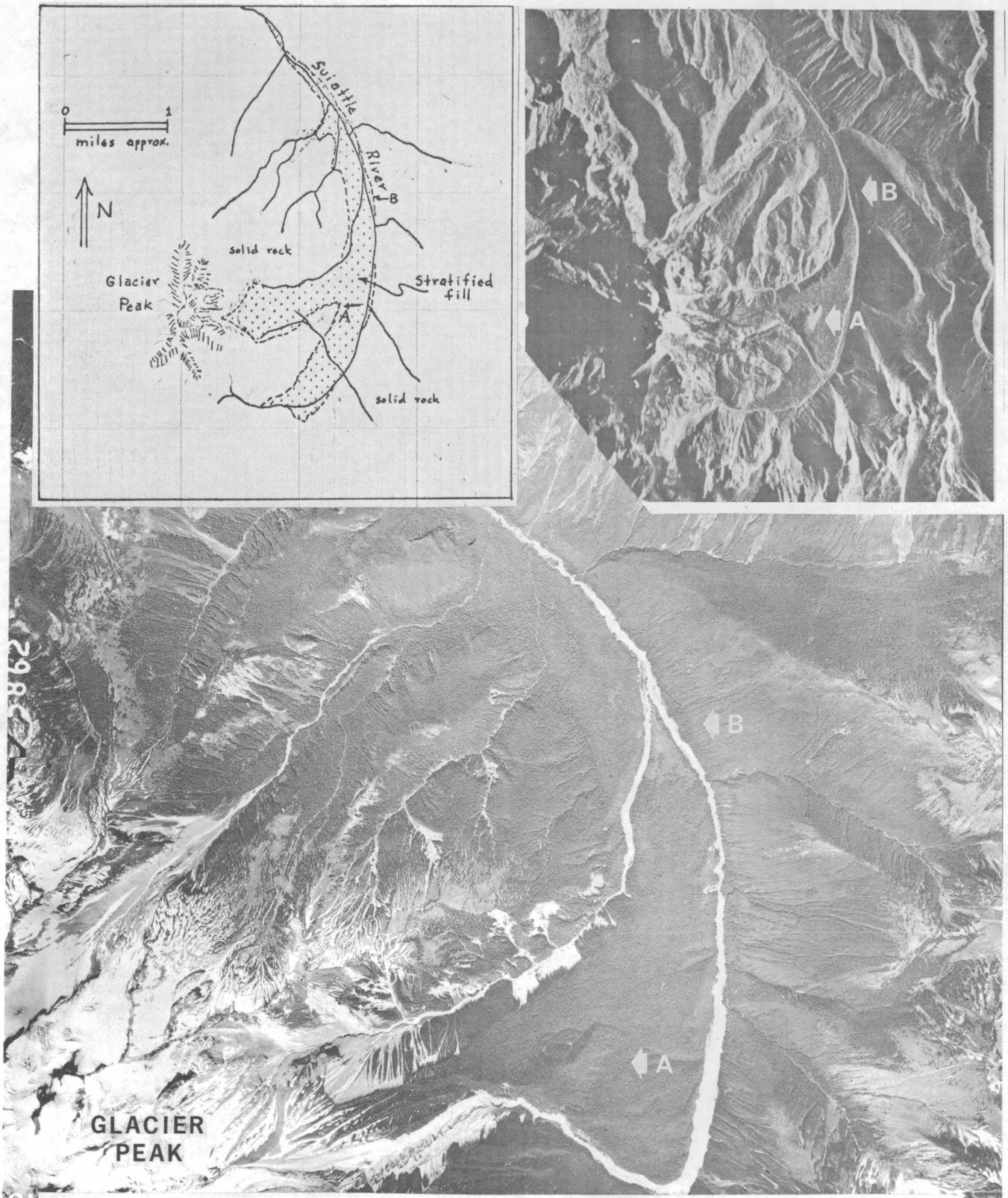

Figure 1. Glacier Peak volcano and debris fan filling Suiattle valley. Conventional aerial photograph below; radar imagery top right; sketch map of fill top left.

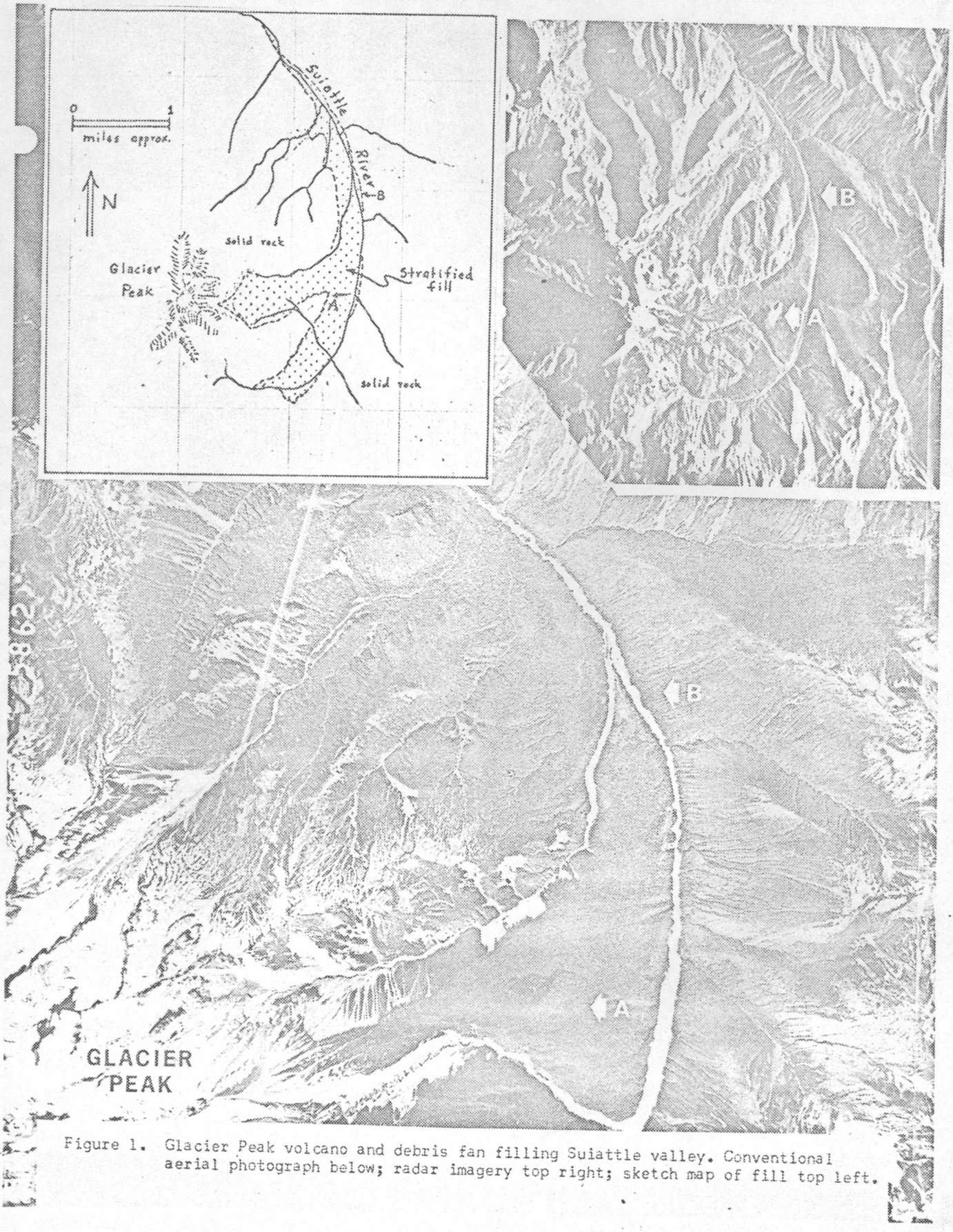

Figure 1. Glacier Peak volcano and debris fan filling Suiattle valley. Conventional aerial photograph below; radar imagery top right; sketch map of fill top left.